



ABSTRACT AND BIOGRAPHY

Taking Program Risk Management To The Next Level on NASA's Constellation Program

Over the past 20 years or so, interest in the application of risk management on programs and projects has grown tremendously. Risk management practice has evolved in complexity and effectiveness to meet the growing demand. Early NASA program and project risk management practice included formal organizational risk reviews to identify risks impacting technical, cost, or schedule goals; the use of qualitative scorecards to characterize the likelihood and severity of each risk; the use of information systems to track the status of these risks and verify closure; and regular management reviews to ensure progress in the prevention or mitigation of these risks at all levels of the WBS. Experience showed that while this minimal level of effort was essential to managing risk, it was not enough. NASA's Constellation program is applying new practices designed to bring risk management to higher level of effectiveness. This paper outlines the key strategies being implemented by Constellation, including:

- Expansion of risk identification to include more formal identification venues;
- Linking risks more closely to requirements, TPMs, schedule tasks, cost threats, and safety risk assessments;
- Establishing synergy between systems safety, probabilistic risk assessment, and risk management activities;
- Establishing a broad risk informed decision making paradigm that affects decisions at program boards and panels, ATP milestones, and operational readiness reviews.
- Building flexible IT systems that allow traditional risk accounting functions while integrating with other technical and programmatic data systems.

Establishing an iterative risk informed design process to effectively utilize qualitative and quantitative risk analysis to better balance risk with other design commodities and achieve higher levels of safety and mission success.

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John V. Turner, PhD has over twenty-three years experience in human space-flight applications, including: mission operations, engineering development, systems engineering, project management, risk assessment, and risk management. As a private consultant he has provided risk assessment and management expertise in the oil and gas, defense acquisition, and airport security applications. He currently serves as the Risk Manager and Risk Assessment lead for the Constellation human spaceflight exploration program. He formerly served in this role on the Space Shuttle Program, developing a Space Shuttle Risk Management program during the return to flight activity following the loss of the Space Shuttle Columbia. Dr. Turner currently serves as a Lt. Colonel in the United States Air Force Reserve. He graduated from Virginia Tech, with a B.S in Aerospace and Ocean Engineering. He obtained an MS from the University of



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Houston Clear Lake in Space Science, Finally, he completed a PhD in Industrial Engineering at the University of Houston.